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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/695,319 | 10/28/2003 | Ramaswamy Vaidyanathan | 39819-00 | 4850 |

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BP America Inc.
Docket Clerk, BP Legal, M.C. 5 East
4101 Winfield Road
Warrenville, IL 60555

EXAMINER

BARBEE, MANUEL L

| ART UNIT | PAPER NUMBER |
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2857

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,319

Applicant(s)

VAIDYANATHAN ET AL.

Examiner

Manuel L. Barbee

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/7/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On page 14, line 7, after "Figure", insert --3--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4-6, 13-17, 20-22 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by McDonald et al. (US Patent No. 6,072,576).

With regard to mathematically transforming data obtained from an on-line analyzer to obtain scores correlative to a property and regressing the scores with a process variable to generate an estimate of the property, as shown in claims 1 and 16, McDonald et al. teach using an analyzer to measure a property of a chemical process, developing scores with the measured data and regressing the scores with a property such as viscosity or temperature to predict a property of interest (col. 3, line 45 - col. 4, line 5; col. 4, line 65 - col. 5, line 11; col. 6, line 64 - col. 7, line 36). With regard to using an analyzer to collect data and inputting the estimated property into a controller, as shown in claim 16, McDonald et al. teach using an analyzer to collect data and using

the subsequent property prediction to control the chemical process (col. 4, line 65 - col. 5, line 11; col. 7, line 58 - col. 8, line 7).

With regard to an analyzer selected from the group shown in claims 4 and 22, McDonald et al. teach using infrared and nuclear magnetic resonance (col. 4, line 65 - col. 5, line 11). With regard to a gas reactor having one or more fluidization domains as shown in claims 5, 6, 20 and 21, McDonald et al. teach a chemical reactor with some stages as vapor and others as fluid (col. 2, line 26 - col. 3, line 38).

With regard to non-linear and linear regression as shown in claims 13 and 14, McDonald et al. teach regression (col. 6, line 64 - col. 7, line 36). With regard to mat least one process variable, as shown in claim 15, McDonald et al. teach measuring temperature (col. 8, lines 29-33).

With regard to varying the output of the controller in response to the estimated property, as shown in claim 17, McDonald et al. teach varying the rate of the addition of a catalyst into a reactor to control a property (col. 7, line 58 - col. 8, line 7). With regard to manufacturing a chemical from the group shown in claim 27, McDonald et al. teach olefin purification and polymerization (col. 8, lines 10-23).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al. in view of Kilius et al. (US Patent No. 5,324,755).

McDonald et al. teach all the limitations of claim 1 upon which claim 2 depends and claims 1 and 5 upon which claim 26 depends. McDonald et al. do not teach manufacturing a polymeric material that contains at least fifty weight percent of material originating as propylene monomer units or ethylene monomer units, as shown in claims 2 and 26. Kilius et al. teach ethylene-propylene monomer rubber having an ethylene/propylene weight percent ratio in the range of 25/75 to 75/25 (col. 10, 16-23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process plant control, as taught by McDonald et al., to include ethylene/propylene weight percent ratios, as taught by Kilius et al., because then the rubber would have had the desired properties for use in the manufacture of molded articles (Kilius et al., col. 3, lines 29-45).

6. Claims 3, 7, 8 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al. in view of Dechene et al. (US Patent No. 5,408,181).

McDonald et al. teach all the limitations of claims 1, 5 and 6 upon which claims 3, 7 and 8 depend and claim 16 upon which claims 23-25 depend. McDonald et al. do not teach obtaining free induction decay (FID) curve data, transforming the data and regressing the data with one more process variables for the purpose of estimating melt flow rate of the polymeric material, as shown in claims 3, 7, 8 and 23-25. Dechene et al. teach using nuclear magnetic resonance to obtain FID data and using the data to determine melt flow (col. 2, lines 40-54; col. 3, lines 33-50). It would have been obvious

to one of ordinary skill in the art at the time the invention was made to modify the process plant control, as taught by McDonald et al., to include using FID curve data and regression to determine melt flow, as taught by Dechene, because then the melt flow property of the polymer being created would have been controllable.

7. Claims 9 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al. in view of Dechene et al. as applied to claims 1, 5 and 8 above, and further in view of Kilius et al.

McDonald et al. and Dechene et al. teach all the limitations of claims 1, 5 and 8 upon which claims 9 and 10 depend. McDonald and Dechene et al. do not teach a polyolefin reactor and a material that has at least fifty weight percent of material originating as propylene monomer units or ethylene monomer units, as shown in claim 9 or an impact copolymer with polymerized propylene and ethylene monomer units, as shown in claim 10. Kilius et al. teach ethylene-propylene monomer rubber having an ethylene/propylene weight percent ratio in the range of 25/75 to 75/25 (col. 10, 16-23). Kilius et al. teach ethylene that is impact modified (col. 9, line 64 - col. 10, line 15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process plant control combination, as taught by McDonald et al. and Dechene et al., to include ethylene/propylene weight percent ratios, as taught by Kilius et al., because then the rubber would have had the desired properties for use in the manufacture of molded articles (Kilius et al., col. 3, lines 29-45). It would further have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process control combination, as taught by McDonald et al. and Dechene et

al., to include impact modified compositions, as taught by Kilius et al., because alternative rubber groups would have been available (Kilius et al., col. 9, line 64 - col. 10, line 15).

8. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al. in view of Dechene et al. and Kilius et al. as applied to claims 1, 5, 8 and 9 above, and further in view of Stephens et al. (US Patent Application Publication 2003/0073787).

McDonald et al, Dechene et al. and Kilius et al. teach all the limitations of claims 1, 5, 8 and 9 upon which claims 11 and 12 depend. McDonald et al, Dechene et al. and Kilius et al. do not teach a polymeric material with at least fifty weight percent of material originating as propylene or ethylene monomer units and at least two weight percent material originating as monomer units of an olefin other than propylene or an alpha olefin having four or more carbons, as shown in claims 11 and 12. Stephens et al. teach a polyolefin reactor that uses at least fifty weight percent propylene or ethylene and alpha olefins having four or more carbons (par. 18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify process plant control combination, as taught by McDonald et al., Dechene et al. and Kilius et al., to include a polyolefin reactor, as taught by Stephens et al., because then performance and quality of the polymer manufactured would have been increased (Stephens et al., par. 10).

9. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonald et al. in view of Bowden (US Patent No. 3, 976,981).

McDonald et al. teach all the limitations of claims 16 and 17 upon which claims 18 and 19 depend. McDonald et al. do not teach two or more controllers that are PID controllers or fuzzy logic controllers, as shown in claims 18 and 19. Bowden teaches a multi-channel controller that includes PID controllers (col. 3, line 67 - col. 4, line 25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process plant control, as taught by McDonald et al., to include PID controllers, as taught by Bowden, because then a number of different variable would have been controlled (Bowden, col. 3, line 67 - col. 4, line 25).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Long et al. (US Patent No. 6,479,597) teach Raman analysis for olefin polymerization control.

McGinn et al (US Patent No. 6,590,131) teach control of a chemical manufacturing process.

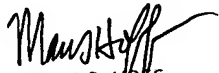
Long et al. (US Patent Application Publication 2004/0233425) teach on-line control of polymer properties.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manuel L. Barbee whose telephone number is 571-272-2212. The examiner can normally be reached on Monday-Friday from 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mlb
December 13, 2004


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